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UNDERSTANDING THE URBAN BATTLESPACE:
AN INTELLIGENCE CHALLENGE

By

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The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of

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Knowledge is the primary enabler for the Joint Force Commander to shape the urban Battlespace and win decisively. Therefore, the Joint Force Commander will have high expectations, and rightly so, for intelligence to facilitate knowledge superiority in the dynamic and complex urban environment. Military Operations on Urban Terrain (MOUT) occur in the most difficult environment for proper Joint Intelligence Preparation of the Battlespace (JIPB). Understanding the critical role of intelligence in formulating an intelligent operational plan seems intuitive, but this desired goal is elusive if the defense intelligence community is not focused on the problem. The military intelligence community needs to be prepared for what is likely to be its greatest challenge over the next 5-15 years. To ensure a timely, accurate and relevant urban JIPB, the issues of intelligence production responsibilities, procedure development, and prioritization of intelligence support to MOUT must be addressed. Without a solid plan of action, joint intelligence organizations may struggle in their attempts to clearly portray the modern urban Battlespace to the Joint Force Commander.

*"Modern urban combat operations will become one of the primary challenges of the 21st century. ... Understanding the dynamics of the urban environment will be the foundation of an effective urban combat force."*¹

Introduction

Military Operations on Urban Terrain (MOUT) are nearly inevitable and occur in the most difficult environment for proper Joint Intelligence Preparation of the Battlespace (JIPB). The complex factors making MOUT difficult to execute also make support to MOUT potentially overwhelming for joint intelligence organizations. The military intelligence community needs to be prepared for what is likely to be its greatest challenge over the next 5-15 years. The question is whether the U.S. defense intelligence community² can overcome the daunting challenges and provide the intelligence support necessary for successful planning and execution of Joint Urban Operations (JUO). Currently, the defense intelligence community is neither fully prepared nor focused on the task of providing support for MOUT. Assignment of urban analysis and production responsibilities, development of MOUT intelligence support methodologies, and increased prioritization for scarce resources are required for joint intelligence organizations to successfully comprehend and interpret the urban battlefield for the Joint Force Commander (JFC).

MOUT: A Difficult but Critical Environment for Intelligence Analysis

For millennia, military advice has stressed the importance of avoiding combat in cities. However, the world fundamentally changed during the 20th century and now urban combat is not only more probable, but as most analysts of urban warfare suggest, it is now unavoidable. Urban warfare pundit Ralph Peters portends the situation as: "The

future of warfare lies in the streets, sewers, high-rise buildings, industrial parks, and the sprawl of houses, shacks, and shelters that form the broken cities of our world."³ The Director of the Army After Next Urban Warfare Project further defines the problem:

Unfortunately, if demographers and political strategists are correct, the reality is that many, if not most, of the military operations of the next two decades will be conducted in and around large urban areas. Cities -- and those connected clusters of cities called "conurbations" -- increasingly will be the political, economic, social, and cultural epicenters around the world. The control of large urban areas will be critical to the successful accomplishment of strategic, operational, and tactical objectives in future conflicts.⁴

Myriad factors make the urban environment a difficult and demanding place for intelligence operations. These include: increasing third world urbanization both in terms of city sizes and urban population explosions; the dynamic complexity of modern cities; destabilizing conditions in developing world urban areas; and the asymmetrical advantages provided by cities to potential adversaries. The implicit challenges to intelligence organizations are evident in the Joint Doctrine definition of urban terrain, which describes all urban areas as sharing the following three characteristics: a complex manmade physical terrain; a population of significant size and density; and an infrastructure upon which the city depends.⁵

All these characteristics contribute to the difficulty in performing JIPB, which is a continuous four step process: defining the Battlespace; describing its effects on friendly and adversary forces; evaluating the adversary; and determining potential adversary courses of action.⁶ Each of the four JIPB steps is significantly more complicated in urban areas than in open terrain. "From mapping to target acquisition, from collection to analysis, and from battle damage assessment to the prediction of the enemy's future

intent, intelligence requirements in urban environments are far tougher to meet than they are on traditional battlefields."⁷

A review of global urbanization trends illustrates how large the prospect for conflicts in the cities has become. The sheer number of cities--or urban agglomerations--with at least a million inhabitants is ever increasing, particularly in the developing world. The table below illustrates the rapid expansion of developing world urbanization.

Urban Agglomerations (Population > 1 million)	1950	1996	2015
Total	83	336	527
Developing World	44	221	389
Developed World	39	115	138

TABLE 1, GROWTH OF URBAN AGGLOMERATIONS⁸

Predicting which of the hundreds of cities will become the site of future conflict and initiating JIPB *before* the commitment of U.S. forces becomes more difficult each year.

The overall percentage of the world population living in the urban environment continues to increase. In 2000 nearly half--47%--of the world's population lived in an urban agglomeration; by 2030 the U.N. estimates three out of every five people will live in an urban area. However, U.N. statistics show that nearly all the future population growth will be absorbed in the urban areas of the developing world. While, the developed world's urban population and the world's total rural population are both estimated to remain steady over the next 30 years, the third world urban population is estimated to grow from 1.9 billion to 3.8 billion by 2030, *accounting for all the world's population growth*.⁹ This tremendous and continuous change of the developing world's demographic landscape will encumber efforts to describe the urban operating environment for the next several decades.

Not only are the number of cities and their populations multiplying but the cities themselves continue to sprawl into the surrounding areas and increase in complexity. Many of these growing urban agglomerations become interconnected into conurbations. As a result, in certain areas of the world urban terrain is simply unavoidable. Yet, even as cities expand, this larger urban area becomes ever more intricate.

As cities become physically larger and more populous, urban terrain grows more complex. Buildings increase in number, as well as in size. Road networks become more extensive, to include heavy-duty, multi-lane highway systems. Subterranean infrastructure expands as subways and storm sewers reach out to service broader areas. Urbanization spreads like an oil stain, creating broad and complex "transition zones" consisting of suburbs and industrial areas which separate the city core from its rural surroundings.¹⁰

The dynamic urban landmass, constantly expanding and redeveloping, causes products depicting urban terrain to become outdated far more quickly than those dealing with traditional, non-urbanized terrain.

The large, impoverished third world urban populations are likely to be a primary source of future instability and conflict over the next several decades. Rapid urban growth in the less developed world, which is not as capable of sustaining the growth, can become socially destabilizing and lead to a greater incidence of violence and insurgency.¹¹ The Project on Environment, Population and Security studied the relationship between urban growth and violence. Several factors were analyzed that will likely increase urban violence in the future. "These factors include periodic economic crisis, the reduction of state capacity to cope with political challenges, grassroots demands for democratization, and a gradual fading of the rural experience as a basis for evaluating relative economic standing and opportunity."¹² Another facet of the problem follows.

While many urban military operations have focused on the difficulties of modern multistory urban cores and subterranean levels, some of the most difficult areas of future operations will rise from underdeveloped slums in and around the city. In many rapidly developing cities, slums and shantytowns are growing twice as fast as the whole city. Worldwide, more than 1 billion urban dwellers live in inadequate housing. ... These slums become epicenters of unrest, disease, and hunger and are focal points for aid relief and counterinsurgency operations.¹³

These destabilizing conditions in developing world cities further increase the uncertainty of when and where MOUT will be required. Intelligence organizations are faced with the formidable task of identifying potential urban conflicts and predicting their likelihood.

Most urban warfare experts believe the cities of the developing world will become the battlefields, either by necessity or choice, for adversaries fighting a technologically superior force.¹⁴ A contingency planner need only look to a sampling of urban conflicts over the last 30 years - Israeli attacks on Suez City in 1973 and Beirut in 1982, U.N. operations in Mogadishu in 1993, and Russian assaults into Grozny in 1995 and 1999, to discern how weaker adversaries exploited MOUT to even the odds against a superior attacker.¹⁵ Urban warfare researcher William Rosenau further explains: "The harsh urban environment, particularly in the developing world, is an ideal arena for 'asymmetrical' adversaries seeking to neutralize the technological, logistical, and organizational advantages currently enjoyed by modern military forces."¹⁶

One of the key advantages offered by the urban environment to a defender is the ability to deny or degrade U.S. forces' technologically derived information superiority. U.S. Intelligence, Surveillance, and Reconnaissance (ISR) systems were designed to exploit a military force operating in open terrain, such as the Soviet Red Army in Eastern Europe or Iraqi forces in the desert. These high-tech ISR assets were not envisioned to operate against an adversary in a city. "A particularly challenging aspect of urban terrain

is the fact that much of the 'volume' of a major city is actually interior--the space found inside structures or under ground."¹⁷ This interior space, currently hidden from ISR sensors, provides less capable adversaries a sanctuary. Thus, urban areas can aid less capable adversaries by inhibiting the ability of U.S. intelligence organizations to perform a thorough evaluation of an adversary's capabilities and intentions. Understanding the environment and adversary well enough to unmask the innate concealment of urban areas will become a primary obstacle for joint intelligence to overcome.

The unique nature of the urban environment requires the inclusion of new JIPB factors. Intelligence organizations will need to collect and analyze information on a host of urban characteristics to support urban operations spanning the spectrum of warfare from high to low intensity including Military Operations Other Than War (MOOTW). An initial list of some unique urban JIPB categories is contained in Appendix A. These urban operational factors differ significantly from traditional JIPB requirements and require new skills and expertise from intelligence analysts in order to define and describe the urban Battlespace. The urban JIPB factors should be analyzed in the context of the urban area being a system of systems, with each of the factors having interrelationships and interdependencies with each other.¹⁸ For instance, critical urban services usually depend on the electrical grid. Furthermore, many of these same services also depend on parts of the transportation network. Addressing these urban JIPB requirements and how they interact will require ingenuity and innovation within the intelligence community.

As is true in all military operations, JIPB is a critical function. A review of MOUT since World War II reinforces the crucial role of accurate operational intelligence in devising a sound operational plan. The U.S. Army Human Engineering Lab studied 22

urban combat cases over a 40-year span, 1942-1982, in Europe, Mid East and Asia. One finding of the study was that intelligence failures were a major contributor in the five cases where the attacker was unable to prevail in taking a city. In three of these five failures, a major intelligence error was determined to be the single greatest cause. Underestimating the defender's determination to fight, combat capabilities, and ability to reinforce and re-supply were cited as critical intelligence errors in these five cases.¹⁹

Evaluating the Russian assault into Grozny during early 1995, analyst Tim Thomas arrived at a similar conclusion. "The Russians did not do a proper intelligence preparation of the battlefield..." which resulted in a flawed operational scheme that suffered initial setbacks and tactical defeats. These failures were caused by underestimating the capabilities and will to fight of the Chechen rebels, and not having a detailed knowledge of Grozny itself, a city of 495,000 people covering 100 square miles.²⁰ According to Thomas, the Russians applied the IPB lessons learned from the botched 1995 attack towards their re-assault on Grozny in January 2000.²¹ During 1993, urban operations in Mogadishu, Somalia suffered a setback due to operational intelligence failures. "... [A]s the mission in Somalia changed from peacekeeping to peace enforcement during USOSOM II, the U.N. failed to develop a full awareness of the local population's disposition and did not obtain adequate intelligence on the adversary's intentions and capabilities."²²

The main lesson learned from the case studies is not unique to MOUT: know your enemy. However, the *qualifying* lesson learned is that evaluating the adversary is more difficult and complex in the urban environment. The task of discerning the

adversary's composition, disposition, and intentions within a city complex, often among a sizable native population, requires tremendous effort and skill.

Limitations in Current JIPB Support for MOUT

Defining and understanding the urban area prior to operational planning may require extensive intelligence gathering and reliance on SOF [Special Operations Forces], including CA [Civil Affairs] and PSYOPS [Psychological Operations] units. The JFC should optimize intelligence resources and capabilities in order to map the urban area as a dynamic, multidimensional landscape that is highly interactive. A mutually supportive combination of human, electronic, and archival data should allow the JFC to thoroughly identify and analyze an adversary's dependencies.²³

This stated roadmap for effective JIPB in urban areas prescribed in the Handbook for Joint Urban Operations is easier to delineate in writing than it is to actually execute with current joint intelligence organizations and resources. Operational intelligence assessments and JIPB of the urban environment are extraordinarily demanding tasks. This difficult is caused by the inherent complexity and uniqueness of each urban agglomeration, the sheer volume of the urbanized square miles, and the millions of people in each city. The JFC, through the Joint Force Intelligence Officer (J2), has little to no direct control over the dozen or more military and national intelligence agencies that must prioritize and synchronize their efforts to produce a complete, accurate, and timely urban JIPB. Furthermore, the intelligence community has analytical, technological, and organizational limitations that may hinder JIPB support for the operational planning and execution of MOUT.

The current categories of joint intelligence products,²⁴ which include Indications and Warning (I&W), Current Intelligence, General Military Intelligence (GMI),

Targeting Intelligence, and Science and Technical (S&T) Intelligence, do not translate well toward satisfying the requirements for JIPB in urban areas. The GMI category, which includes Military Capability Studies, Political-Social-Economic Assessments, and Adversary Course of Action Estimates, covers most of the JIPB requirements, but they are all produced as stand-alone products and are not well integrated. The complexity of the urban environment points to a need for a fused intelligence product combining the elements of the traditional family of intelligence products in use today. A single integrated JIPB product, now feasible with current information technology, will be better suited to coherently depict the urban Battlespace. To further exacerbate the problem, the Department of Defense (DoD) has not assigned a lead organization or agency for JIPB production in support of MOUT, nor are there any existing agreements between the various intelligence organizations as to specific production responsibilities in this area.

Even if the production issue were resolved, there are significant analytical deficiencies concerning urban warfare in the defense intelligence community. "From language skills to knowledge of urban planning (or the lack thereof), many of the abilities essential to combat in cities are given low, if any, priority in today's intelligence architecture."²⁵ Though the intelligence community lacks substantive knowledge concerning many of the urban JIPB requirements in Appendix A, the expertise *does* exist among civil engineers, city planners, and social scientists. Some of these experts, as in Special Forces--Civil Affairs (CA) and Psychological Operations (PSYOPS), Public Affairs, Civil Engineers, medical professionals and Foreign Area Officers (FAO) are in the military, either on active duty or as reservists. Though outside the defense

intelligence community, expertise from these disciplines can be readily incorporated into the JIPB process through their intelligence staff counterparts.

More difficult to incorporate into the JIPB process are the civilian urban experts: social science researchers and university professors (e.g. demographers, ethnologists), non-governmental organization workers, scientists, and industrial engineers specializing in infrastructure or utilities (e.g. electrical power, transportation). One problem is that most military intelligence officers are not conversant with the types of urban information studied by these civilian specialists. Many of the available open-source "raw" data inputs (e.g. electrical grid schematics, building blueprints, demographic surveys), including technical information gleaned from Human Intelligence (HUMINT) sources may be of limited value to the JFC unless analyzed by an appropriate civilian expert before integration into the JIPB product. Harnessing the expertise resident in academia and industry is critical for effective operational intelligence support to MOUT.

As discussed, a technological limitation to urban JIPB production is that the sophisticated collection sensors available to U.S. forces are not optimized for operating in the urban environment. This limitation should drive intelligence planners to a greater reliance on HUMINT. Own force SOF reconnaissance capabilities, for example, can satisfy certain urban JIPB requirements normally met by high-tech assets. Additionally, local expertise concerning the urban JIPB requirements can be exploited using HUMINT sources within the city and region. However, a limitation with HUMINT collection is the time and effort involved. Developing reliable HUMINT sources takes time, especially if starting from scratch. Once sources are established, the exploitation of the information takes longer than analyzing high-tech ISR collected information.

Another technological limitation is the lack of an available format for urban visualization and urban terrain databases. However, the data quantities that a three-dimensional urban terrain database with infrastructure and population data generates are staggering. Just the urban mapping function alone requires tremendous computer processing capability, memory and bandwidth, probably more than is currently available to JFCs. As an illustrative example, the University of California Los Angeles (UCLA) urban simulation team estimates their three-dimensional model of Los Angeles, covering approximately 10,000 square miles, will exceed 1-terabyte in size when complete.²⁶

The current intelligence information architecture cannot process and disseminate a 1-terabyte terrain database, let alone the volumes of data required to "culturally" map a large urban population or the technical data necessary to depict interrelated urban infrastructures. The Joint Intelligence Virtual Architecture (JIVA) concept of a distributed network to collaborate the analysis and dissemination of intelligence among national, theater, and tactical elements provides the future solution to this problem.²⁷ Any urban database needs to be a multi-level effort produced and shared between the strategic/national intelligence producer, operational planner, and tactical operator. Any level of the intelligence hierarchy with collection and analysis resources must have the ability to update and improve the database. For example, tactical Army, Marine, or SOF units reconnoitering an urban area should be able to fill in the "gaps" in the urban terrain database directly, providing instant access to other users of the database at all levels of command. However, a single agency needs to begin development, in partnership with ongoing civilian commercial and research efforts, to make this type of database a reality.

There are tremendous volumes of data and information, most of which are readily available, that must be assimilated into the JIPB for urban areas. The multitude of potential information "inputs" including national intelligence products and sources, Allied or Coalition intelligence products, theater and tactical military sources, and the largely unexploited open-sources, can quickly overwhelm a theater Joint Intelligence Center (JIC) tasked with JIPB of urban areas. Without the resources or expertise to collate the disparate "raw" data concerning the urban environment, the theater JIC will be unable to single-handedly conduct JIPB and provide a product of intelligence value to the JFC and assigned forces. The value of all this information cannot be realized unless the urban JIPB effort is coordinated to ensure the appropriate experts and production centers constructively contribute to the process.

Recommendations to Overcome the Urban JIPB Challenge

The available resources and manpower of the defense intelligence community are fully tasked with current requirements. The potentially overwhelming task to define the urban environment, describe its effects, analyze the adversary, and predict enemy courses of action will require resources and analytical contributions from nearly every segment of the intelligence community. Therefore, the entire defense intelligence community needs to commit to the problem in a fashion similar to the support provided for counter-terrorism and weapons of mass destruction (WMD) counter-proliferation. To accomplish this shift in priorities, the Chairman of the Joint Chiefs of Staff (CJCS) and the theater Commanders-in-Chief (CINCs) need to articulate intelligence support to MOUT as a

priority requirement. With such a mandate the defense intelligence community will be able to divert resources toward providing knowledge superiority for MOUT.

The draft Doctrine for Joint Urban Operations, JP 3-06, "Appendix A, Joint IPB in Urban Areas" provides a good overview of the JIPB process and lists unique considerations for urban operations (as shown in Appendix A of this paper). However, neither draft JP 3-06 nor any other document addresses who in the intelligence community needs to be responsible for the various levels of expertise and production required to satisfy all the JIPB factors listed. A detailed plan assigning responsibilities within the defense intelligence community needs to be established. Following is a preliminary proposal of how these issues can be addressed.

A national level defense or joint intelligence organization needs to be tasked with the mission of developing the baseline for urban JIPB. Two unofficial proposals have argued this point. One recommendation is to establish a Joint MOUT Analysis Center co-located with the National Ground Intelligence Center (NGIC), the U.S. Army's service intelligence production center at Charlottesville, VA.²⁸ Another suggestion similarly outlines the need for an Urban Analysis Center at the DoD or Service Branch Level.²⁹ Both recommendations stress the need for a central organization leveraging national intelligence capabilities and non-traditional intelligence sources (e.g. open-source data, reservist expertise) to produce urban infrastructure, cultural, and adversary threat intelligence. These concepts have merits and limitations. One issue is how much production should be consolidated at the national level vice the production efforts at the Unified Command JICs? Another key question is which existing production center is best suited for this mission?

While good for supporting specific Army MOUT concerns that are mainly tactical in orientation, NGIC is not a true joint intelligence agency and does not have the operational focus for supporting CINCs and Joint Force Commanders. A MOUT analysis center at NGIC is a valid requirement, however NGIC is probably not the best location for a Joint Urban Analysis Center. The concept for a DoD level Urban Analysis Center is sound, but where such a center should be located is a crucial detail. An Urban Analysis Center at the Defense Intelligence Agency (DIA) would be a logical choice based on DIA's worldwide focus to address intelligence support issues. However, due to DIA's national and strategic focus it would probably not be as responsive to the operational concerns of CINCs and Joint Force Commanders as other organizations. Certainly, DIA should form an Urban Analysis Cell. However, its focus should be to manage and coordinate MOUT intelligence production throughout the defense intelligence community vice being the production center itself.

The lead intelligence agency needs to be aligned with the lead DoD organization responsible for the overall development and support of MOUT. Currently, no organization is designated as the lead for MOUT. A logical choice would be to task the Joint Forces Command with the development and experimentation of Joint MOUT concepts and doctrine. As such, the Joint Forces Intelligence Center (JFIC) and the Joint Warfighting Analysis Center (JWAC), both within the Joint Forces Command purview, would naturally become the lead production and development organizations for the defense intelligence community.

With significant assistance from the National Imagery and Mapping Agency (NIMA) and the U.S. Army's Topographic Engineering Center's (TEC) Terrain Analysis

Branch, JWAC could lead the development of the urban terrain and infrastructure database. With its extensive engineering and scientific analysis capabilities, JWAC is uniquely suited to develop the infrastructure content required for any urban terrain database. JWAC has an existing and successful methodology for fully exploiting open-source research and traditional classified sources. By expanding the scope and composition of its analysts and experts outside the traditional intelligence community (e.g. other government agencies, university professors, civilian industry experts), JWAC would be able to provide the basis for urban JIPB production. One potential limitation is that JWAC is outside the defense intelligence community as regulated by DIA production guidelines. It could be argued that this is also a strength of JWAC, permitting the organization to be more flexible and responsive to the operational needs of the CINCs. Another limiting issue is that an increase in its mission, of this magnitude, would require a significant expansion of JWAC's resources. Overall, due to its modus operandi, expertise, and operational responsiveness, JWAC is probably the best organization in the defense establishment to adequately tackle the fusion of physical urban characteristics and factors into the urban JIPB.

Considering the volumes of data necessary for a thorough database of an urban agglomeration, it is unrealistic to expect production support for more than a few sample urban databases. Therefore, JWAC should be tasked to find out what is readily accessible to populate urban terrain databases. An aggressive open-source "data mining" operation to identify and archive pertinent information will be the first step. Even if the data is not analyzed or incorporated into a common database, the effort of finding the information and gaining access to data, whether from public or commercially protected

sources, will be extremely valuable. A further goal should be to develop a useable database compatible with the current information technology of deployed Joint Forces. Assuming most future contingencies will require a rapid JIPB effort, the process of developing a "working" database model will provide a prototype that can support near-term crisis-driven JIPB efforts.

The Joint Forces Command J2 and JFIC should lead the development, experimentation, testing, and incorporation of JWAC products into the JIPB processes for the urban environment. JFIC can work with the intelligence staffs of forces tasked with the MOUT mission, such as the XVIII Airborne Corps, II MEF, and Special Operations Command (SOCOM) components to further refine the process. The goal would be to integrate the collaboration capabilities of JIVA (Joint Intel Virtual Architecture) to make inter-relational databases, at all levels of intelligence production, a working reality. JFIC can coordinate with the JCS J2 staff and a DIA Urban Analysis Cell to codify unique urban JIPB tactics, techniques and procedures (TTP). Due to the underlying problem of not being able to accurately forecast where and when MOUT will be required, JFIC should concentrate on developing a rapid urban JIPB process.

Support to MOUT during actual operations will be a central function of the intelligence community and needs to be fully supported throughout the existing joint intelligence hierarchy. In real-world MOUT situations, the theater JICs will assume the primary role of planning and coordinating the overall JIPB effort within their combatant command.³⁰ The JIC will then be responsible for substantially assisting the Joint Force J2 staff with the continuing JIPB effort throughout all phases of the operation. The theater JIC, as the repository of regional expertise accountable to each warfighting CINC,

must be focused on intelligence support to MOUT in theater. Therefore, it is imperative that each theater Joint Intelligence Center (JIC) form its own MOUT analysis cell. A small Urban Analysis Cell at the theater level can work with the theater component intelligence staffs to further identify unique urban intelligence requirements. The theater JICs will be able to employ and exploit the developmental work accomplished by JWAC and JFIC for incorporation into their own theater urban JIPB concepts and TTP.

While JWAC and JFIC can concentrate on the infrastructure and terrain visualization databases, theater JICs are best suited to focus on the regional cultural intelligence and urban adversary threat analysis unique to their areas of the world. A small theater JIC Urban Analysis Cell will be able to work with Foreign Area Officers (FAOs), Joint Special Operations Task Force (JSOTF) personnel, and intelligence analysts who have traveled the region and are often intimately familiar with the urban areas in question. The JICs will also be able to establish working relationships with regional non-military experts, such as urban demographers and social analysts.

One concept that could aid theater level intelligence is the establishment of a deployable MOUT intelligence support team. A National Intelligence Support Team (NIST)-like group could be drawn from existing expertise at DIA, JWAC, and JFIC and would deploy in theater to assist the JIC or a Joint Force J2 assigned to execute a Joint Urban Operation. This type of centralized expertise forward deployed to aid operational Joint Force Commanders has worked well with NIST team augmentation in the past.

Since MOUT conditions can vary considerably between each theater's region of analytical responsibility, the theater JICs must maintain the capability to synthesize the urban JIPB process in their region of the world. The urban areas of the developing world

in Latin America, Africa, the Mid East, and Asia have significant differences as to the level and types of urbanization, physical structures, population densities, demographics, ethnic dispositions, and cultural eccentricities. Contemplating the differences between "problem" cities in each region - Bogotá, Colombia vice Lagos, Nigeria vice Karachi, Pakistan vice Jakarta, Indonesia - illustrates the diversity of modern urban agglomerations.

Conclusion

Knowledge is the primary enabler for the Joint Force Commander to shape the urban Battlespace and win decisively. Therefore, the Joint Force Commander will have high expectations, and rightly so, for intelligence to facilitate knowledge superiority in the dynamic and complex urban environment. Understanding the critical role of intelligence in formulating an intelligent operational plan seems intuitive, but this desired goal is elusive if the defense intelligence community is not focused and prepared. To ensure a timely, accurate and relevant urban JIPB, the issues of intelligence production responsibilities, procedure development, and prioritization of intelligence support to MOUT must be addressed. Assigning JWAC and JFIC lead roles in development and experimentation, establishing expertise and procedures at theater JICs, and increasing the priority of MOUT support within the intelligence community will improve the disjointed status quo. Without a solid plan of action, joint intelligence organizations may struggle in attempts to clearly portray the urban Battlespace to the Joint Force Commander.

Appendix A: Unique JIPB requirements for urban areas³¹

- 1) Infrastructure information
 - a) Physical composition of the city
 - i) Layout and subdivisions of the urban area, including subterranean features
 - ii) Density and purpose of the urban area--residential, commercial, or industrial (specifics on types of industries and potentially hazardous materials)
 - iii) Building structures and construction materials
 - b) Transportation networks--roads, railways, rivers, canals, bridges, subways, sea and air ports.
 - c) Utilities--concentrating on key facilities, nodes and critical urban services.
 - i) Communications--telephone networks both lines/cables and cellular systems, radio and television stations, newspapers and other printed media
 - ii) Power sources--electrical grids, transformers, sources of power generation
 - iii) POL and natural gas storage facilities and distribution networks
 - iv) Water systems--sources outside the city, filtration, and distribution nodes
 - v) Sanitization--sewage and waste disposal mechanisms and facilities
 - vi) Food distribution and external food sources
 - vii) Health services--medical facilities, available health care
- 2) Social Factors
 - a) Governmental organizations--in addition to utilities--police, firefighting, schools
 - b) Non-government and private volunteer organizations (NGOs and PVOs)
 - c) Population demographics (age, income level, ethnicity, religion, area density, etc)
 - d) Social Structure--political organizations and leadership, cultural considerations, social interactions, religious organizations, other influential community groups
- 3) Adversary analysis
 - a) Adversary's likely objectives and desired end state in regard to the urban area
 - b) Conventional and unconventional warfare order of battle
 - c) Doctrine and capability to operate in the urban environment
 - d) Terrorist, insurgent, and criminal groups and their methods of operations
 - e) Base camps and support areas in the surrounding environ
- 4) Analysis of interrelationships and interdependencies between all the above factors
 - a) Nodal analysis within each factor and sub-factor
 - b) Analysis of the urban area as an integrated "system of systems," toward understanding the synergistic effects

Endnotes

¹ Matt Von Konynenburg, The Urban Century: Developing World Urban Trends and Possible Factors Affecting Military Operations, (Marine Corps Intelligence Agency, Quantico, VA: November 1997), 11.

² The U.S. defense intelligence community is comprised of various intelligence agencies and organizations under the aegis of the Defense Intelligence Agency (DIA) linked by a "federated production" concept of mutual support and collaboration. Intelligence commands are not self-sufficient; they synergistically produce intelligence by fusing originally produced information with information from various commands and sources. A partial list of the defense intelligence community follows: DIA, National Security Agency (NSA), National Reconnaissance Office (NRO), National Imagery and Mapping Agency (NIMA), National Ground Intelligence Center (NGIC), National Maritime Intelligence Center (NMIC), National Air Intelligence Center (NAIC), and the Unified Command Joint Intelligence Centers (JIC). Two "outside" organizations, the Joint Warfighting Analysis Center (JWAC) and U.S. Army Corps of Engineers Topographic Engineering Center, contribute substantially to the defense intelligence community effort.

³ Ralph Peters, "Our Soldiers, Their Cities," Parameters, (Spring 1996): 43.

⁴ Robert F. Hahn and Bonnie Jezior, "Urban Warfare and the Urban Warfighter of 2025," Parameters, (Summer 1999): 74.

⁵ Joint Chiefs of Staff (JCS), Doctrine for Joint Urban Operations, JP 3-06 Second Draft, (Washington, DC: 30 October 2000), I-6.

⁶ JCS, Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace, JP 2-01.3, (Washington, DC: 24 May 2000), II-1.

⁷ Peters, 48.

⁸ U.N. Population Division, "Urban Agglomerations 1996,"
<www.undp.org/popin/wdtrends/urb/urbcht.htm>

Defines an urban agglomeration, vice the political entity of a city, as "... the population contained within the contours of contiguous territory inhabited at urban levels of residential density without regard to administrative boundaries."

⁹ U.N. Population Division, "World Urbanization Prospects: The 1999 Revision,"
<www.undp.org/popin/wdtrends/urbanization.pdf>

¹⁰ Paul K. Van Riper, "A Concept for Future Military Operations on Urbanized Terrain," Marine Corps Gazette, 90 (October 1997): A-1.

¹¹ Jennifer Taw and Bruce Hoffman, The Urbanization of Insurgency: The Potential Challenge to U.S. Army Operations, (Santa Monica, CA: RAND, 1998), 7.

¹² Peter Gizewski and Thomas Homer-Dixon, "Urban Growth and Violence: Will the Future Resemble the Past?" (Project on Environment, Population and Security, Washington DC: June 1995)
<www.library.utoronto.ca/pes/eps/urban/urban1.htm>

¹³ Von Konynenburg, 3.

¹⁴ RAND Corp, Denying the Widow-Maker: Summary of Proceedings RAND-DBBL Conference on MOUT, (Santa Monica, CA: Arroyo Center, RAND, 1998), 27.

¹⁵ Russell W. Glenn, "... We Band of Brothers," The Call for Joint Urban Operations Doctrine, (Santa Monica, CA: Arroyo Center, RAND, 1999), viii.

¹⁶ William Rosenau, "Every Room is a New Battle: The Lessons of Modern Urban Warfare," Studies in Conflict & Terrorism, 20 (October 1997), p. 371.

¹⁷ Van Riper, A-6.

¹⁸ Richard M. Francey, "The Urban Anatomy: The Fundamentals of a City." (SAMS Monograph, U.S. Army Command and General Staff College, Fort Leavenworth KA: 25 October 1995), 3.

¹⁹ R.D. McLaurin, Modern Experience in City Combat, (Aberdeen Proving Ground, MD: U.S. Army Human Engineering Laboratory, March 1987), 19.

²⁰ Timothy L. Thomas, "The Battle of Grozny: Deadly Classroom for Urban Combat," Parameters, (Summer 1999): 92-93.

²¹ Thomas, "Grozny 2000: Urban Combat Lessons Learned," Military Review, (July-August 2000): 54.

²² JCS, Handbook for Joint Urban Operations, (Washington, DC: 17 May 2000), IV-35.

²³ Ibid, III-6.

²⁴ JCS, Joint Intelligence Support to Military Operations, JP 2-01, (Washington, DC: 17 May 2000), III-30.

²⁵ Peters, 45.

²⁶ University of California Los Angeles (UCLA) Urban Simulation Team, "The City (Urban) Simulator," <www.gsaup.ucla.edu/bill/uSim.html>

²⁷ Robert K. Ackerman, "Military Intelligence Expands Collection and Analysis Focus," Signal, (October 1997): 23.

²⁸ Brian Keller, "Intelligence Support to MOUT: Lessons Learned from the Battle for Grozny," (U.S. Army War College, Carlisle Barracks, PA: 10 April 2000), 29.

²⁹ Dave Dillege, "Urban Analysis - A Need at all Levels of Operation and Command," MOUT Homepage, <www.geocities.com/Pentagon/6453/uaca.html>

³⁰ JCS, JP 2-01.3, I-11.

³¹ Derived largely from JP 3-06 Second Draft, "Appendix A, Joint IPB in Urban Areas," and concepts from Richard Francey, "The Urban Anatomy: The Fundamentals of a City."

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